

# PATENT ABSTRACTS OF JAPAN

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## (54) INK JET RECORDING HEAD AND INK JET RECORDER EQUIPPED WITH THE RECORDING HEAD

$$i(r) = \frac{I}{\theta r d(r)}$$

$$q(r) = i(r)^2 \rho d(r)$$

$$q(r) = \frac{I^2 \rho}{\theta^2 r^2 d(r)}$$

(57)Abstract:

PURPOSE: To obtain a recording head having a novel heating element wherein heating distribution on a surface of a resistor is equalized and its recorder by a method wherein a heating resistor has a heating part of an approximately circularly annular or fan-like annular surface shape, and its thickness is varied inversely proportional to a distance in a radial direction from a central point of the surface shape.

CONSTITUTION: When voltage is impressed by making a current (I) flow radially along a radial direction of a heating resistor, a thickness d(r) of a heating part of the heating resistor is varied inversely proportional to a radial distance (r) from a center of a surface shape. Thereby, a current density i(r) at any point on the heating part at a radial distance (r) apart from the center comes to be as given by the formula (I). In the formula  $\theta$  is an angle of a fan-like annulus ( $2\pi$  in

the case of a circular annulus). Relation between the resistivity ( $\rho$ ) of the resistor and a heating value q(r) per unit time unit area is as given by the formula II. Therefore, the formula III is obtained.

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